

15¢

# SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE

A SCIENCE SERVICE PUBLICATION

ington  
ription.

e ma-

, 1951

olister,

yle of

t and

s the

oot is

it out

again.

, 1951

cently

ladder

from

truck,

which

e and

, 1951

welers

s and

leaned

com-

book,

, and

, 1951

U

UNIV OF MICHIGAN  
THE OBSERVATORY



## In Recognition of a Job Well Done

Westinghouse fully recognizes the excellent foundation being provided engineering students in many colleges and universities throughout the land.

But to speed young engineering graduates in the inevitable transition from theory to practice, Westinghouse has dedicated a new building . . . the Westinghouse Educational Center.

Primary purpose of this center is to offer the best facilities possible for the training and continued education of new employees . . . top students from leading engineering schools. This modern center includes such facilities as an auditorium; classrooms acoustically treated and with modern visual aid equipment; library and magazine room; formal and informal lounges; game, billiard and hobby rooms; facilities for athletic activities, and a convenient cafeteria.

This is but one way in which Westinghouse encourages scientific advancement, in addition to supporting 42 fellowships, 149 scholarships, 5 professorships, and a graduate study program through which advanced degrees may be obtained from leading universities by Westinghouse employees. Another important phase of the Westinghouse program is summer research work by selected graduate students, and an industrial experience program for faculty members of engineering schools.

In these ways, Westinghouse co-operates with colleges in a common effort to advance scientific achievement in all of its aspects. Westinghouse Electric Corporation, Pittsburgh 30, Pennsylvania.

G-10136

**YOU CAN BE SURE..IF IT'S Westinghouse**

## ASTRONOMY

# Billion Suns With Planets

Probably one star in every thousand has planets circling it just as the earth circles the sun, Yerkes astronomer estimates.

► THERE ARE about a billion suns in the universe, each with a family of planets circling around it just as the earth, Mars, Venus and the other six planets revolve around our sun, Dr. Gerard P. Kuiper of Yerkes Observatory of the University of Chicago reported.

Probably one star in every thousand, possibly one in every hundred, has a number of dark little worlds like our own earth which are its planetary companions, Dr. Kuiper estimates.

"One can only speculate on the possible forms of life which may have developed on these many unknown worlds," Dr. Kuiper states. "It would be very strange indeed if life on these distant planets, millions and billions of miles farther away than the sun's most distant planet Pluto, should be at all similar to life as we know it here on earth."

We shall never be able to see one of these dark little worlds, shining only by reflected light, beyond our own solar system. But many stars are known to have companions bright enough to be seen, or

massive enough to make their presence known through their pull on their companion star.

At least half of the stars in the universe are either double or multiple systems, Dr. Kuiper states (PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, Jan.). In fact, almost all stars probably originated as components of double or multiple systems.

There is only one chance in a thousand that a star-in-the-making would have a small-enough angular momentum to allow a single, rotationally stable star to be born. But many of the original multiple stars must have dissolved later because of mutual perturbations in multiple systems or because passing stars force double or multiple stars apart by gravitational pull. At present one in every three or four stars is single.

A small pre-star cloud moving about a primitive sun may form either a single bright star companion or a family of dark planets, Dr. Kuiper states. This would depend entirely on the way matter within the secondary cloud is distributed.

The cosmic cloud from which were created the planets which circle our sun was probably about a tenth as massive as the one from which the sun was formed. This light, gaseous covering of the sun undoubtedly extended from where we now find the planet Mercury to where Pluto moves in its orbit, or even beyond.

Five to ten baby planets like Ceres were formed between the orbits of Mars and Jupiter, Dr. Kuiper calculated. Sometime within the past three billion years, however, two of them happened to collide, causing numerous fragments. Thereupon collisions became increasingly frequent until thousands of asteroids, tiny flying mountains known to exist in this region today, had been formed. The fire balls which flash through the earth's atmosphere and drop as meteorites are but the smallest members of this huge family of fragments created in the asteroid ring. Meteor Crater in Arizona was formed by one of these fragments.

Science News Letter, April 14, 1951

## PUBLIC HEALTH

## Old Plumbing Codes Add to Cost, Not Safety of Homes

► CENTURY-OLD plumbing codes still in force are adding to the costs of home construction without making homes any safer, an American Public Health Association committee in New York charged.

It is not necessary, for instance, that every fixture trap in a plumbing system be protected by an individual vent. Even though sewer gas were to enter a room through a temporary emptying of the trap, this gas is now known to be harmless, the committee on the hygiene of housing points out.

Similar handicaps to home building from the 2,200 local building codes in the country are described, with advice on how to make a home healthy without excessive cost, in the association's book, CONSTRUCTION AND EQUIPMENT OF THE HOME, published by the Public Administration Service of Chicago.

Science News Letter, April 14, 1951

## PHYSICS

## Atomic Particle Counted In Billionth of a Second

► AN ATOMIC particle can be counted in a billionth of a second by a new electronic technique developed by Stanford physicists.

Advantage is taken in the improved device of the fluorescent light that flashes when an atomic particle passes through suitable crystals or liquids. The scintillation counter made by Dr. Richard F. Post and a team of physicists gets extra speed by operating at 4000 volts instead of the 1000 volts used on tube of earlier scintillation counters, which are supersensitive cousins of Geiger counters.

Science News Letter, April 14, 1951



**FAST MEASUREMENT**—Norman Shiren, research assistant, and Dr. Richard F. Post, adjust photo-multiplier tube used in Stanford experiments which have counted an atomic particle in a billionth of a second.

## OPHTHALMOLOGY

# Prevent Babies' Sore Eyes

► **PENICILLIN OINTMENT** is "the most efficacious, the safest and the least irritating" substance for preventing gonorrheal eye disease in newborn babies.

Laws and board of health regulations should, where necessary, be changed to permit use of this drug in hospitals when the doctor prefers it to other preventives.

These conclusions and recommendations on a recently controversial subject are reported by Dr. H. H. Davidson, Miss Justina H. Hill and Dr. N. J. Eastman of Johns Hopkins University and Hospital, Baltimore, in the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* (April 7).

Silver nitrate has for generations been the standard drug used to prevent gonorrheal eye disease, known also as babies' sore eyes and ophthalmia neonatorum. Its use is required by law in some states. When penicillin's ability to stop the gonococcus and cure gonorrhea was discovered, doctors naturally wondered whether it would not be as good as or better than silver nitrate for preventing gonorrheal infection in babies' eyes.

The question became a matter of controversy which may be settled by the report of studies supported by the U. S. Public Health Service.

The studies included more than 13,000 newborn babies. Over 9,000 of them got shots of penicillin into the muscles immediately after birth. Not a single case of gonorrheal eye infection developed.

For another 4,163 babies, shots of penicillin, silver nitrate eye drops and penicillin eye ointment were used in rotation. All babies born one week got the penicillin shots, all born the next week got the silver nitrate drops, and so on. Signs of local irritation, such as redness, swelling or discharge, developed in 10.6% of the penicillin ointment group, in 13.8% of the

penicillin shots group and in 48.7% of the silver nitrate group. This is in keeping with the general experience that silver nitrate produces chemical irritation in a high percentage of cases, the scientists point out.

Penicillin ointment is easy to use and costs about the same (3.4 cents per baby) as the silver nitrate wax ampules (4 cents per baby). The silver nitrate ampules are preferred to drops prepared at hospitals because of less danger of error in their preparation.

Penicillin ointment is not recommended for routine use in home births because it should be kept refrigerated and because busy doctors might forget to check the expiration dates on the tubes.

Science News Letter, April 14, 1951

## CHEMISTRY

## Synthetic Fruit Made To Better Drying Methods

► **SYNTHETIC FRUITS** and vegetables have been made by University of Delaware chemists, not for eating but for experiments in dried food.

The natural texture and appearance of dried fruits and vegetables as well as their flavor, are important when they have water added to them. Real food was too complex for the role of various materials in them to be disentangled.

For this reason George L. Baker, John F. Kulp, and Ralph A. Miller put together pure cellulose, fruit acids, salts, sugars and pectins to form simulated food for drying experiments. They reported to the American Chemical Society meeting in Boston that pectins, the gelling substances in fruits and vegetables, are the most important class of materials in promoting the swell-

ing of the dried product when it is heated with water.

If the pectins in the synthetic fruit mixtures were altered by enzymic action before drying, the dried mixtures would swell better upon adding cold water. The pectins were changed to what are called low-methoxyl pectins. This promises to be of practical importance in preparation of dried food for military and other uses.

Science News Letter, April 14, 1951

### SCIENCE NEWS LETTER

VOL. 39

APRIL 14, 1951

No. 15

45,300 copies of this issue printed

The Weekly Summary of Current Science, published every Saturday by **SCIENCE SERVICE, Inc.**, 1719 N. St., N. W., Washington 6, D. C., North 2255. Edited by **WATSON DAVIS**.

Subscription rates: 1 yr., \$3.50; 2 yrs., \$10.00; 3 yrs., \$14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

Change of address: Three weeks notice is required. When ordering a change please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

Copyright, 1951, by Science Service, Inc. Reproduction of any portion of **SCIENCE NEWS LETTER** is strictly prohibited. Newspapers, magazines and other publications are invited to avail themselves of the numerous syndicate services issued by Science Service. Science Service also publishes **CHEMISTRY** (monthly) and **THINGS OF Science** (monthly).

Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C. under the act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for by Sec. 3440, P. L. and R., 1948 Edition, paragraph (d) (act of February 28, 1925; 39 U. S. Code 283), authorized February 28, 1950. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to periodical literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 3717 Ave., N. Y. C., Pennsylvania 6-536, and 360 N. Michigan Ave., Chicago. STAtE 2-4822.

## SCIENCE SERVICE

The Institution for the Popularization of Science organized 1921 as a non-profit corporation.

**Board of Trustees**—Nominated by the American Association for the Advancement of Science: Edwin G. Conklin, Princeton University; Karl Lark-Horowitz, Purdue University; Kirtley F. Mather, Harvard University. Nominated by the National Academy of Science: Harlow Shapley, Harvard College Observatory; R. A. Millikan, California Institute of Technology; L. A. Maynard, Cornell University. Nominated by the National Research Council: Ross G. Harrison, Yale University; Alexander Wilmore, Secretary, Smithsonian Institution; Rene J. Dubos, Rockefeller Institute for Medical Research. Nominated by the Journalistic Profession: A. H. Kirchhofer, Buffalo Evening News; Neil H. Swanson, Baltimore Sun Papers; O. W. Riegel, Washington and Lee School of Journalism. Nominated by the E. W. Scripps Estate: H. L. Smithson, E. W. Scripps Trust; Frank R. Ford, Evansville Press; Charles E. Scripps, Scripps Howard Newspapers.

**Officers**—President: Harlow Shapley; Vice President and chairman of Executive Committee: Alexander Wilmore; Treasurer: O. W. Riegel; Secretary: Watson Davis.

**Staff**—Director: Watson Davis. Writers: Jane Stafford, A. C. Monahan, Marjorie Van de Water, Martha G. Marrow, Ann Ewing, Wadsworth Library, Science Clubs of America; Joseph H. Kress, Margaret E. Patterson. Photography: Fremont Davis. Sales and Advertising: Hattie Jenkins. Production: Priscilla Howe. In London: J. G. Fainberg.

## Question Box

## ASTRONOMY

About how many planets have been estimated for the universe? p. 227.

## ENGINEERING

How can economies be effected in factories? p. 232.

## GENERAL SCIENCE

What kind of intelligence network will be set up? p. 237.

## MEDICINE

What is importance of mapping man's blood groups? p. 237.

Photographs: Cover, Westinghouse Electric Corporation; p. 227, Stanford University; p. 230, U. S. Air Force; p. 231, General Electric Company; p. 234, Merck Company.

## NUTRITION

What chemical team spurs the growth of poultry and hogs? p. 234.

What waste material may be used directly for cattle feed? p. 231.

## PSYCHOLOGY

How can Army predict if recruit will stand up under battle noise? p. 231.

## RADIO

How will new device eliminate costly television antenna? p. 233.

## TECHNOLOGY

How is white leather made white all the way through? p. 238.

## ZOOLOGY

What are the chances of being bitten by a shark off the Massachusetts coast? p. 233.



## BOOK REVIEW

# Another World Watches?

A review of another "flying saucer" book by Gerald Heard (Harper and Bros.). Dr. Liddel has stated cosmic ray research balloons caused many flying saucer reports.

By URNER LIDDEL, Ph.D.

Head, Nuclear Physics Section  
Office of Naval Research

▶ THOSE WHO make an earnest endeavor to tell the truth often run into great difficulty. They are always confronted by bigoted scientists whose myopic vision allows them to see only a narrow portion of the universe, or even of the area in which they live. Mr. Heard in his new book, "IS ANOTHER WORLD WATCHING?" has made a great contribution to scientific literature in reporting the eye-witness accounts and the logical deductions that can be made from these eye-witness accounts by a shrewd series of incisive questions.

I cannot remember the first time the Martians invaded the earth. I recall a series of books by Edgar Rice Burroughs in which an earth creature was allowed to go to Mars and inspect life there, but this turns out to be wrong from Mr. Heard's book. Now the Martians are watching and inspecting things on the earth. H. G. Wells was wise enough to say this many years ago in the War of the Worlds, and in 1939 Orson Welles was able to make a radio presentation of the invasion of men of Mars. You will recall the hundreds of eye witness accounts of the Martians who landed, and their various activities on the New Jersey soil. Only people with lack of vision failed to see these invaders and, for some reason unknown, all of these invaders have been hidden away or otherwise disposed of. Was the Government afraid to let the public know that these men were real? Are they now in the concentration camps somewhere being carefully watched by psychologists? The only difficulty is that the eye-witness accounts of these invaders are somewhat at variance with the conclusions arrived at in Mr. Heard's book.

From various calculations it appears that the Martian creature is an insect of one or two inches in length, with many characteristics of the earth, creature known as a bee. These Martian creatures are extraordinarily wise and capable of handling extraordinarily great amounts of power. Furthermore, they have aids to vision which enable them to see farther and with much greater resolution than the earth creature, "man", can do with his poor equipment.

We further find from this book that our mathematics is all wrong, that there are in reality three kinds of probabilities: (1) Argument, (2) Action, and (3) Demonstration (page 54). The last is, of course, of considerable importance to the experimentalist, but even here we find that we did

not understand the true situation. The hide-bound, narrow-minded physicist had assumed that Einstein's law, the equivalence of Mass and Energy, enunciated in 1905, had been thoroughly understood down through the years; in particular, well demonstrated in 1932. This, however, turns out to be not so. "The demonstration that drove the matter home for all of us was the Atom Bomb. With that explosion the theory that matter is really not matter but a terrible form of locked-up energy was turned into terrible fact." (Page 55). This leads us to the new knowledge that we now have several forms of energy, one of which, at least, is terrible.

## Circled Fort Knox?

The author has very kindly pointed out to us just why the "flying saucers" circled over Fort Knox. (Page 98). They were curious as to why the earth creatures had accumulated all this element "AU" (taken to mean the chemical symbol of Gold, which is generally written Au). They assumed that we would have no reason for accumulating it except that it "must be our real source of power"! (Page 98). They apparently discovered this material by its gravitational effect, as nearly as one can deduce. A crude calculation on my part shows that there must be somewhat less than thirty thousand tons of gold hidden deep in the vaults of Fort Knox. How unusual that these extremely intelligent beings have not inspected the Queen Mary, the Queen Elizabeth, and other masses three or four times this magnitude that gently float across the liquid surface of the earth!

Another new scientific phenomenon is announced in this book. Piezo-electricity has long been known to the physicist. However, even the largest crystals with which we have worked, in particular large quartz crystals, as cited in the book, have given us only a few thousand volts with a few milli-amperes peak current in a single flash, not a source of continuous power. However, we are quite stupid because Mr. Heard tells us that "the engine powered by these vibrated crystals can yield two thousand volts at 75 amperes." (Page 135).

Another difficulty with our crystals is that we have to put far more mechanical power into bending these crystals to get this electricity, than we would get if we turned a routine electric generator to obtain the generated electrical power.

At long last we find the secret of Mars! Not only is it inhabited, but it is controlled by two satellite vehicles of the type proposed by many people for control of the

earth. (Page 140 et seq.). The objects which we and the astronomers have thought of as moons running around Mars are not at all so. They are the satellite vehicles that circle the planet with great speed in order to see all the activities that occur on that planet.

It turns out, according to Mr. Heard, that these invaders have a widely varied series of vehicles in which to travel around in the upper atmosphere of the earth. These vehicles vary in size from approximately one foot in diameter to cigar-shaped objects of very considerable length. Some of the vehicles are even a thousand feet in diameter. What ecstasy American engineers could experience if they could but view the production line on which these vehicles are made and learn the secret of how these vehicles are propelled throughout the air! The reader of this book is given to understand that they probably travel on gravitational waves. The mere physicist has worried about the propagation of gravitational waves for some time without success, but this does not bother the shrewd, instinctive knowledge of the author of this important contribution to literature. These new type vehicles are apparently propelled on gravitational waves (see page 84) much as we propel our vehicles by electromagnetic waves. Of course, this reviewer knows only how to propel extraordinarily small particles even by electromagnetic waves. This is due to his own stupidity.

But the author realizes the very great danger in telling truth. He says "Giordano Bruno, a rash man believing that 'facts' could speak and should be spoken of, defied authority in its own lair, and to the shame of all concerned, to the lasting discredit of their judgment and their charity, was burnt alive." (Page 179). The reader isn't quite sure of the significance of this statement except that one must be extraordinarily careful when he tells the truth. No one knows this better than the reviewer.

As I previously noted, there will continue to be flying saucer stories—misinterpretations of truly observed phenomena (like the sailing lamp-shade in the photos by Trent)—apparent observations of unreal phenomena (the result of mirages). Just as many people truly believe in ghosts, so they will continue to believe in the metaphysical aberrations known as "flying saucers".

I cannot resist the following comment. It is stated on the flyleaf, "In connection with the release by the Office of Naval Research . . . it is interesting to note that this story was cleared by the Navy for security only—not as an endorsement of the facts." So far as I know, the Office of Naval Research has not issued a release on this matter. One of its employees granted an interview to a magazine correspondent.

The perpetration of such a book spreading solely fear psychology at this time, especially by such a reputable publisher, is, in my humble opinion, completely inept.

Science News Letter, April 14, 1951



**NET HARNESS**—This safety harness is designed to protect airmen from crash impact and from take-off and landing jolts.

#### AVIATION

### Strong Net Safety Harness Protects Wearer in Crashes

► A STRONG net harness which fits over the side of a soldier and his pack, designed for airborne troops who sit side by side along the walls of a plane, promises greater safety in case of a crash in take-off or in landing.

This new protective harness was developed at the Wright-Patterson Air Force Base, Dayton, Ohio, and now has withstood field tests. It is called a "side saddle" safety harness, and in use extends upward from the seat to the shoulder, covering the body and pack of fully-equipped parachuters or combat infantrymen.

The harness is made of nylon mesh webbing, secured by four snap-on attachments which fasten to wall and floor fixtures. It is easily converted to a lap belt merely by pulling down a top strap over the shoulder.

Science News Letter, April 14, 1951

#### VETERINARY MEDICINE

### Sick Cattle Are Aided By Stomach Transfusions

► A NEW kind of transfusion is helping speed the recovery of sick cattle, the American Veterinary Medical Association reports from Chicago.

Instead of blood, digestive fluids are given. These fluids, from the stomachs of recently slaughtered, healthy cattle, contain rumen bacteria and other elements vital to digestion in cattle. Animals recovering from such conditions as shipping fever, severe bloat and scours may refuse feed and water and remain weak because the disease has killed off the helpful bacteria in their own rumens.

Science News Letter, April 14, 1951

#### OCEANOGRAPHY

## Icebergs Normal This Year

► ICEBERG conditions on the North Atlantic are normal so far this year, and they are expected to remain so.

Every spring and summer Arctic ice drifts southward, a menace to U. S.-Europe shipping. The danger season, where the Labrador current and the Gulf Stream meet to form the so-called "cold wall", lasts from March or April to July.

On April 11, by international agreement, shipping of all nations swung south from the northern, most direct great circle route to Europe. From that date through June 30, ships use emergency track "B", 150 miles south of the route used during the rest of the year.

Since February, U. S. Coast Guard planes, specially equipped B-17's, have been scanning the fog-bound region, approximately the size of Pennsylvania, for the menacing bergs. When these are spotted, usually by radar, their exact position is found, using war-developed Loran to pinpoint the place. Searching by plane is augmented by a patrol ship standing by in the danger area when the berg concentration gets very heavy.

The icebergs, mostly broken from the great glaciers on western Greenland, have journeyed about 1,800 miles in the Labra-

dor current to become such a threat. It is estimated that 7,500 sizable bergs break off each year. Of these, an average of 427 drift south of latitude 48 degrees north, silent white specters to shipping in the North Atlantic region.

The berg's lifespan and travel are controlled by wind, weather and current. Some work has been done to find a formula by which the kind of iceberg year could be predicted. None has yet been entirely successful. So maritime officials stick to the prescribed lanes, listen to the twice-daily broadcasts of the U. S. Navy's Hydrographic Office in Washington, D. C., and thus avoid threatening white mountains.

Spurred by the Titanic disaster, Belgium, Canada, Denmark, France, Germany, England, Italy, Japan, the Netherlands, Norway, Spain, Sweden, Russia and the U. S. signed the agreement to establish a permanent patrol of the iceberg area. Although the ships patrolling are U. S. Coast Guard cutters, the cost of maintaining them is shared by the participating nations. A new ice patrol agreement has now been worked out and ratified by six nations. It will not become effective until at least 15 nations have signed.

Science News Letter, April 14, 1951

#### RADIO

## Guide Planes to Target

► A RADIO bomb that could be used to guide planes to their targets in enemy territory has been revealed.

Known as the "Grasshopper," the device was developed by the National Bureau of Standards as a robot weather station. It drops by its self-contained parachute, which, when it opens, automatically starts an electric clock that controls the rest of the operations.

The radio station is readied for use by a series of small, explosive charges. The first explosion occurs when the bomb hits the ground, releasing the parachute to prevent the station from being dragged along the ground. After a short period, another explosive charge operates a leg release device which raises the station to an upright position. A third explosion pushes up the antenna, and the station is then ready to go.

The standard model of the station then transmits valuable weather observations—temperature, pressure and humidity data—and broadcasts the information at predetermined intervals regulated by the clock.

The radio's signals carry about 100 miles under normal conditions. The robot weather device could be simplified to become a radio marker beacon, guiding planes to their destination.

The self-powered station carries enough dry batteries to send signals giving weather information every three hours for more than 15 days. The device also contains a warning circuit to inform the receiving station if the equipment is damaged and an identification circuit so that the receiving operator knows which of several stations is being heard.

Three separate mechanisms are responsive to changes in atmospheric conditions. Any change in the temperature, pressure or humidity causes the value of a resistor in the appropriate detection system to change accordingly. When the transmitter is turned on by the clock, these resistors one after the other are connected to the sending circuit.

The signal sent out by the radio station will pulse at a rate proportional to the value of the connected resistor. At the receiving station monitoring the remote automatic transmitter, the pulse rate of the signal can be read as temperature, pressure or humidity, depending on the phase of the clockwork cycle.

The radio station was originally developed as a secret device during World War II by Percival D. Lowell and William Hakkarinen, of the Bureau of Standards, for the Navy Bureau of Ships.

Science News Letter, April 14, 1951

## PSYCHOLOGY

# Why Not Ask the Man?

► ONE WAY for the Army to predict how a recruit will fight when he gets into the noise and fright of battle might be to ask the man himself.

At least this would be true if we can judge from the performance of college students who took an important examination under very difficult conditions in which they were constantly reminded of the danger of failure.

The students who say that they can not work well under strain actually did very poorly on the examination given under stress, but others who confess they would be terribly upset but nevertheless usually work better under strain, actually did well.

These results were reported to the Eastern Psychological Association meeting in Brooklyn, N. Y., by Drs. Richard S. Lazarus and Charles W. Ericksen of the Johns Hopkins University.

The person who does well under strain is not the person who looks and acts calm, the investigators found. Apparently they are actually distracted from their work by their efforts to control their emotions. The person who does his best under strain is the one who gets upset—whose hands shake, who breaks out in a sweat, whose heart pounds and who breathes hard.

Those who do well in college are less affected by stress than others, it was found.

Science News Letter, April 14, 1951

## NUTRITION

# Feed Cattle on Sawdust

► CATTLE MAY some day feed directly on sawdust piles, or on small wood wafers. They will be able to get about the same amount of nourishment value from wood wastes as from hay, if the feed material has been bombarded with high-voltage electrons.

The idea of using sawdust for cattle feed is not new. But previous methods have changed the chemical form of the wood, usually by acid treatment, to make it suitable feed.

The electron bombardment does the same job as the chemical treatment—makes the cellulose available. Wood consists mainly of cellulose and lignin, in which combination it is indigestible. By irradiation, the cellulose is separated in digestible form.

Dr. Robert E. Hungate, of the State College of Washington, Pullman, cooperated with researchers of the General Electric Research Laboratory, Schenectady, N. Y., in experiments pointing towards the direct use. Details of the work appear in the journal of the American Association for the Advancement of Science, SCIENCE (April 6).

The studies showed that after exposure to high velocity cathode rays, or electrons, part of the sawdust could be digested by organisms in the cow's stomach. Bacteria in the cow's stomach change the cellulose into several other compounds, such as acetic, propionic and butyric acids, that can be absorbed in the animal's intestines.

Since the tests could not be made with enough precision on live cows, Dr. Hungate used bacteria from a cow's rumen, kept in test tubes with the sawdust for one or two days at the cow's body temperature, about 100 degrees Fahrenheit. He then measured the amount of digestible acids formed.

Digestibility was spoiled by "overcooking." The scientists found that irradiation with electrons for less than a minute had little effect. Best results were obtained with exposures of about 12 minutes, when the digestibility by the bacteria was about the same as for hay. Longer irradiation reduced the digestibility.

Science News Letter, April 14, 1951

## CHEMISTRY

# Corn Chemical Promises More Cancer Knowledge

► A CHEMICAL from corn is expected to provide "better understanding of such complex diseases as cancer and arthritis," Dr. Henry E. Paul and colleagues of the Eaton Laboratories, Inc., Norwich, N. Y., told the American Chemical Society meeting, Boston.

The chemical is furacin. It is an anti-bacterial and has been used to treat skin and burn wound infections. A report that it could prolong the lives of cancer-stricken rats led Dr. Paul to investigate its effects on the adrenal glands. Results reported "indicate that in normal animals, furacin acts by first stimulating the pituitary gland which then in turn stimulates the adrenal glands."

Science News Letter, April 14, 1951

# ● RADIO

Saturday, April 21, 1951, 3:15-3:30 p.m., EST  
"Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. Esmond R. Long, director of Henry Phipps Institute, University of Pennsylvania, and editor of the American Review of Tuberculosis, will discuss the "Fight Against Tuberculosis."



**DIRECT SOLDER**—The handle of this glass beaker is a metal spoon, soldered to the glass by a process that permits direct joining. Miss Jane Barstow of the General Electric Company is holding the "cup."

## TECHNOLOGY

# Glass Soldered to Metal In New Bonding Process

► GLASS IS soldered to metal at General Electric, Schenectady, N. Y., in a process utilizing titanium hydride which results in a bond stronger than the glass itself.

The same method can be used to solder metal to ceramics and carbon, G.E. scientists state. The glass and metal areas to be so soldered are painted with a thin layer of titanium hydride, and the solder placed on both painted areas. Then the parts are placed together and heated under a vacuum.

When the temperature reaches about 900 degrees Fahrenheit, the titanium compound decomposes. This causes the solder, which has already become molten, to adhere to the titanium-painted surfaces of both glass and metal.

By using soft metal solders, it is possible to subject this glass-to-metal seal to rapid temperature changes without danger of cracking, despite the wide difference in temperature expansions between glass and metal. This is possible because the differences in movement are absorbed by the solder, it is explained.

The new technique is already in use in aircraft ignition systems and has possible application for other uses.

Scientists responsible for the development are Floyd C. Kelley, Ralph J. Bondley and Lawrence J. Hogue. Early work was done by the first two. Present investigations are being conducted by Mr. Hogue.

Science News Letter, April 14, 1951



## MEDICINE

**Treat Hay Fever Victims With More Potent Pollen**

► A GROUP of hay feverites at Evanston, Ill., will be treated with a new, purer and more potent ragweed pollen extract this summer. If this new material comes up to expectations, the hay feverites will be desensitized more quickly and with fewer bad reactions to the weed that causes their late summer and fall misery.

The new material is the pure, or nearly pure, active principle of short ragweed pollen. Its purification by adsorption on an acid-washed alumina chromatographic column was accomplished by Drs. Theodore B. Bernstein, Anne L. Mosher and Raymond P. Mariella of Northwestern University, Evanston, Ill.

Their material is free of the pigments and possibly some other irritating substances found in the usual ragweed pollen extracts used for testing and treatment. These pigments and irritants dilute the amount of active hay fever causing material in the extracts, making them less potent, and may also be an important cause of the false positive reactions commonly produced when tests are made, especially tests of allergy to food and dust.

Details of the purification and testing of the new material are reported in the journal of the American Association for the Advancement of Science, *SCIENCE* (April 6th).

Science News Letter, April 14, 1951

## TECHNOLOGY

**Power Plant Boilers Today Use Diversity of Fuels**

► POWER PLANT boilers and fuel burning equipment needed today must be able to use a greater diversity of fuels and fuel quality than those of the past, the American Society of Mechanical Engineers meeting, Atlanta, Ga., was told by P. R. Loughin of the Babcock and Wilcox Company, New York.

"There has been a general lowering of quality of raw coal in recent years along with an increase in cost," he said. "Because of increased consumption of imported heavy oils and the blending done at refineries, it is not often possible to count on receiving a given quality of fuel oil over an extended period," he added.

Sulfur, moisture and ash contents of the fuel, and ash fusion temperatures are the most important fuel characteristics. Moisture is an important factor in the design of equipment for it affects storage, handling, ignition, furnace temperatures, corrosion and efficiency.

Ash fusing temperatures vary considerably with the atmospheric conditions under which they exist. Most coal ashes have been found to have higher fusing temperatures in oxidizing than in reducing atmospheres.

Many oil ashes react oppositely. The fusing temperatures are lower in an oxidizing atmosphere than in a reducing atmosphere.

Boilers designed to handle different types of fuel require that proper provisions be made in the design stage. Efficiency will be affected by the constituents of the fuels. Unburned combustible losses are an important factor that must be considered.

Science News Letter, April 14, 1951

## VETERINARY MEDICINE

**Farmers Warned of Danger of Hog Disease Outbreak**

► FRESH OUTBREAKS of swine erysipelas may cause heavy losses among the farmer's hogs and also attack the farmer himself.

The American Veterinary Medical Association has cautioned farmers to wear rubber gloves while handling sick hogs in erysipelas areas and to watch for these common symptoms in swine: lameness, arched backs, discoloration of the skin, enlarged joints, high fever, great loss of weight and sloughing of skin patches.

Germ of the disease may live in contaminated ground for several years and may also spread to other farm stock, including sheep and turkeys.

Science News Letter, April 14, 1951

## BACTERIOLOGY

**Tame Wild Germs, Breed New Ones, Scientist Urges**

► MAN SHOULD tame and breed new strains of bacteria and other micro-organisms for his own use just as he once learned to tame wild animals and breed new species to help him in his farming and daily living.

We have taken some steps in this direction and are starting to take more. But we are just at the beginning of exploiting the "wild life of the microbiological jungle," Sir Ben Lockspeiser, Secretary of Britain's Department of Scientific and Industrial Research in London, believes.

Our attitude towards bacteria and micro-organisms has been much like that of our ancestors towards the wild beasts of the field. We have been afraid of them, since many of them mean death and our first instinct is to protect ourselves.

The production of wines and beers from sugar solutions using yeast is one of man's earliest and most successful tries at harnessing micro-organisms to work for him, Sir Ben said. The new antibiotics industry is the most recent development of this kind.

Micro-organisms in general are susceptible to changes in their food, environment and physical treatment, and thus they can be domesticated for particular purposes. It is this possibility of breeding new, "more able and willing workers" that may have a profound effect on our industrial life, Sir Ben predicted.

Science News Letter, April 14, 1951

**IN SCIENCE**

## MEDICINE

**Season for Spring Colds And Early Hay Fever**

► THE SPRING sneezes and sniffles season is on. Some come from colds and some from hay fever. July and August, of course, are the worst hay fever months because they are the months for ragweed which causes most hay fever. But early spring and summer plants and trees which are now shedding their pollen cause misery for many.

Pollen victims are usually treated by a process of desensitization. First, the physician makes careful tests to determine just which pollen or pollens cause the trouble. Then the patient is given a tiny dose of the offending substance and at regular intervals thereafter increasingly large doses until he is able to tolerate the large amounts of pollen blown on spring and summer breezes. Details of the treatment, of course, must be planned by the physician who will also give advice on general health measures and will prescribe drops for nose and eyes if necessary.

Desensitization treatment can be given during the hay fever season, but is said to be more comfortable and about 20% more efficient if given before the hay fever season starts.

The antihistamine drugs bring relief to many hay fever victims, but physicians usually advise desensitization treatments in addition. Some authorities believe the best results are obtained when the antihistamines are used with the desensitization measures to prevent reactions from these.

Science News Letter, April 14, 1951

## ENGINEERING

**Factory Economies From Study of Variables**

► STARTLING economies in factories can often be obtained by allowing experts to study uncontrolled "random" effects in production.

Uncontrolled variables can be allowed consciously to affect a test for better methods, Dr. Leonard A. Seder, engineer of Gillette Safety Razor Co., Boston, explained to the American Chemical Society. Attempting to hold rigidly constant several factors in plant-size operations just will not work.

Dr. Seder warned against trouble-shooting of three methods: "Squeaky wheel" that treats only the trouble, "rabbit's foot" that assigns an effect to a false cause, and "guinea pig" that extends a conclusion to new conditions to which it is not adapted.

Science News Letter, April 14, 1951



# SCIENCE FIELDS

## MEDICINE

### Acid Studies May Lead to Earlier Cancer Detection

► **EARLIER DETECTION** of some forms of cancer may result from experiments on the body's use of a compound called glucuronic acid which were reported by three Tufts College scientists at the American Chemical Society meeting in Boston.

Among patients suffering from cancer or arthritis a significant number do not utilize glucuronic acid at a normal rate, Drs. W. H. Fishman, C. D. Bonner, and Freddy Homburger, of Tufts Medical School reported.

"This is a new fact and opens up an important field of investigation aimed at finding the explanation and the significance—as it concerns cancer and arthritis—of this defective rate of utilization of glucuronic acid," the investigators stated. "It also suggests the possibility that further studies might lead to a laboratory procedure of value in the diagnosis of gastrointestinal and pancreatic cancer. Cancer of the pancreas is one of the most difficult of all diseases to diagnose accurately, and this difficulty accounts in large part for the high mortality of patients with this disease, since the diagnosis can often be made only after it is too late to treat the disease surgically."

Glucuronic acid is derived from glucose, the type of sugar which circulates in the blood and which is burned by the body tissues to provide the energy which enables a person to work.

Science News Letter, April 14, 1951

## ZOOLOGY

### Shark Bite as Unlikely as Being Struck by Lightning

► **YOUR CHANCES** of being attacked and bitten by a man-eating shark while swimming off the Massachusetts coast are about even with your chances of being struck by lightning in the same area.

So concludes Dr. E. W. Gudger, of the American Museum of Natural History, New York, from a study of the only known case of such an attack. The facts concerning the man-eating shark's assault, which occurred in July, 1936, were gathered by the late Dr. Hugh M. Smith who was then at Woods Hole, Mass.

A man and a young boy were swimming about 150 yards offshore in water 10 or 15 feet deep when the shark, suddenly and without warning, attacked the 16-year-old boy, possibly because his crawl stroke was making considerable commotion in the water. Turning somewhat belly up, the

shark laid hold of the lad's left leg and carried him under the water before he could make an outcry.

The man shouted for help, treading water and supporting the boy after he had broken away from the shark. Although they were rescued without further attack by the shark, the boy, after being taken to a hospital, died from injuries he received.

Dr. Gudger also reports on the only other shark attacks known in the Western North Atlantic region—in 1916, when the so-called "mad shark" ranged along the northern New Jersey coast, killing a number of people. His report appears in the American MIDLAND NATURALIST (Nov. 1950).

Science News Letter, April 14, 1951

## AVIATION

### Giant Aircraft Propeller For Powerful Engines

► **A GIANT** aircraft propeller, a 19-foot affair developed by the Hamilton Standard Division of United Aircraft Corporation, East Hartford, Conn., has completed local tests and is now being tested by the U. S. Air Force at the Wright-Patterson Base, Dayton, Ohio.

This propeller, a four-bladed type with square tipped blades, was developed under Air Force sponsorship for airplane power plants delivering over 5,000 horsepower. It is the largest ever built by Hamilton for turbine engines. It can be used on the highest horsepower piston engines now being considered as well as on so-called "medium" horsepower turbines.

Science News Letter, April 14, 1951

## PSYCHOLOGY

### Glutamic Acid Is Found No Aid to Intelligence

► **HOPE THAT** doses of glutamic acid would raise the intelligence level of mental defectives was dimmed by a report by Drs. Ralph N. Zabarenko and Guinevere S. Chambers, of the Western Psychiatric Institute and Clinic, Pittsburgh, to the Eastern Psychological Association, Brooklyn, N. Y.

Fifty-eight mental defectives took part in the study conducted by these investigators. About half the group remained at Polk State School where they had been for a long time. The rest were moved to Western Psychiatric Institute and Clinic to see what a change in environment would do for them. After a six-month study period some were given 40 grams of glutamic acid a day for periods up to six and a half months while the rest were given sugar pills.

No difference could be observed between those who got the glutamic acid and those who had only the sugar pill.

The change in environment did, however, serve to stimulate the mental functioning.

Science News Letter, April 14, 1951

## RADIO

### New TV Beaming Device Eliminates Costly Antenna

► **THE SIGNAL** Corps' "G-string" for sending television programs over a single wire, announced a year ago, is the basis of a new and inexpensive method of beaming television, radio and radar waves through the air. Elimination of costly and bulky antenna structures is promised.

A simple antenna mast, from 50 to 200 feet in height, is used in the new method. It serves as the G-string. The signals travel along the surface of the mast rather than inside a cable, and then are reflected toward their destination by a pair of flat plates mounted at a 45-degree angle on top of the mast.

The original G-string, designed for use in transmitting television signals and suggested as a substitute for coaxial cable, is a single wire with a special insulation and funnel-shaped terminals. The thin layer of dielectric material used on the wire "shrinks" the electric field surrounding the wire, which ordinarily would extend far from the conductor. The horn-like terminals help concentrate and gather in the field.

The G-string takes its name from Dr. Georg Goubau, of the U. S. Signal Corps Laboratories, Ft. Monmouth, N. J., who is responsible for its development. It has possible uses in telephony and in radar systems. The measured transmission loss with microwaves is a fraction of that in coaxial cables, according to Dr. Goubau.

With this "G-string" antenna mast, complicated rotating joints otherwise needed to change a radar signal's direction, as in "sweeping" the sky, are done away with. Maintenance costs will be low, and the new antenna system is less apt to be affected by snow, hail and other weather conditions.

Science News Letter, April 14, 1951

## OPHTHALMOLOGY

### Anti-Arthritis Drug Works Also Against Eye Disease

► **ACTH AND** cortisone, famous arthritis remedies, are giving doctors the first successful method of directly treating one blinding eye condition. Sympathetic ophthalmia is its name. It is the loss of vision in one eye that sometimes comes after serious injury to the other eye. The new hope for successful treatment of this condition with ACTH and cortisone was reported by Dr. John M. McLean of the New York Hospital-Cornell Medical Center at the meeting in New York of the National Society for the Prevention of Blindness.

ACTH and cortisone may also make possible successful grafting of corneas on eyes that could not otherwise take the graft, early experiments show.

Science News Letter, April 14, 1951

## NUTRITION

# Chemical Team Spurs Growth

**Antibiotic wonder drugs plus vitamin B-12 give more meat on the nation's poultry and hogs. Discovery of growth kick from this team was accidental.**

By ANN EWING

► A NEW chemical team is putting more meat on the nation's poultry and hogs. The team is made up of vitamin B-12 and such wonder remedies—antibiotics, they are called—as terramycin, aureomycin, penicillin, streptomycin and bacitracin.

Discovery of the growth spurt of animals when these two factors are added to diets is so new that exact growth effects are still being tested.

Both partners in the team are potent tools for man's good when used alone. The antibiotics are effective against a host of disease-spreading organisms. Vitamin B-12 is one of the most active biological chemicals known, effective in the treatment of pernicious anemia.

The kick to growth these chemicals give when teamed together was discovered accidentally: aureomycin just happened to be in one of the commercial B-12 supplements fed to poultry.

Even without the extra spurt given by the antibiotics, however, vitamin B-12 deals a plenty potent punch:

Extremely tiny amounts of it, so minute you need a microscope to see the dose, will give a miraculous effect to pernicious anemia victims.

Equally small amounts will put weight on hogs, make chickens grow faster and hatch more eggs, give us plump turkeys sooner than by ordinary diet.

Some scientists say young children who are under par and have no appetite, ask for second helpings and improve in alertness and general behavior when fed very small amounts of vitamin B-12.

## 25 Years of Research

Purified B-12 forms slender, needle-like red crystals. But it took about 25 years of research in two totally different fields to get the pure crystals and to pin on the vitamin its duplicate role as a growth promoter and an anti-pernicious anemia factor.

For many years, farmers and poultry specialists have known that poultry and swine must have certain proteins, particularly during their growth period. And they have known that these necessary proteins are not available from proteins of vegetable growth. On the other hand, ruminants, cud-chewers such as cows or goats, are evidently equipped to make their own required growth factors.

Vitamin B-12 has always been present in poultry and swine feeds. Before the vitamin was identified, it was supplied in natural form by such feed supplements as

fish and meat meals and dried skim milk. It was known as the animal protein factor. But there are not enough of the extra feeds to go around, the supply meeting only about half the demand required for the best production of pork and poultry.

With the discovery of the growth spurt given by the antibiotic-vitamin B-12 combination, some poultry specialists are predicting that as much as 90% of the total poultry feed can be made up of this chemical team added to grain, grain by-products and soybean oil meal. Built-up floor litter as part of the diet will help to give the same growth results as the added chemical combination.

The chemical structure of vitamin B-12 is gradually being unfolded. The most surprising discovery, announced almost simultaneously in England and the United States in 1949, is that B-12 contains cobalt. This is the first time that this diet-vital metal has been found in a pure substance of biological origin.

Since cobalt is known to be needed by cows and other cud-chewing animals for the production of milk, scientists are now

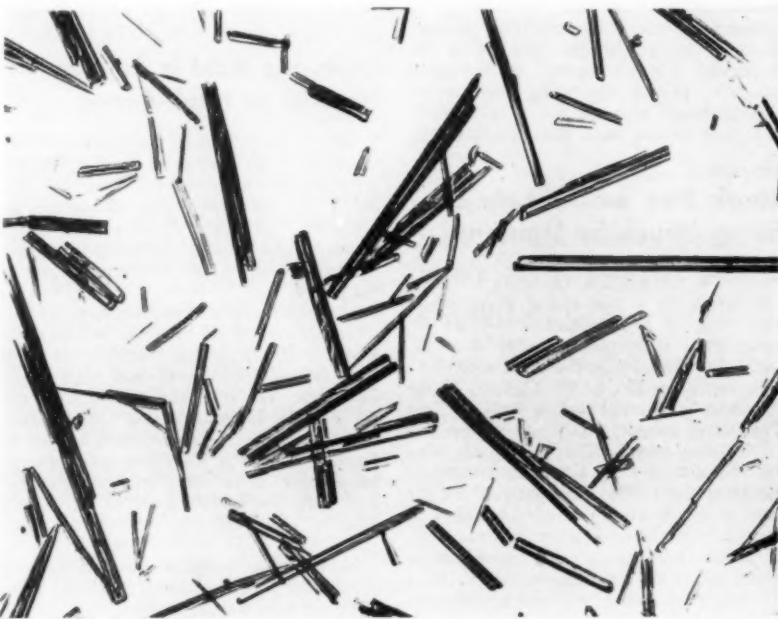
trying to find what connection there is between that fact and the presence of cobalt in vitamin B-12. Cobalt is needed in very small amounts for good human nutrition.

The story of the discovery of vitamin B-12 begins more than 20 years ago when Dr. G. H. Whipple of the University of Rochester Medical School, Dr. W. P. Murphy, Boston, and the late Dr. G. R. Minot found that eating liver was a workable dietary cure for pernicious anemia. For this achievement they were awarded the Nobel prize in medicine in 1933.

Pernicious anemia is a disease of the bone marrow, site of the body's blood-building equipment. It once claimed more than 50,000 victims per year. Those afflicted with this stubborn, once-fatal disease are not able to produce the required red blood cells in their own bodies.

The liver diet cure, wonderful though it was, was also a difficult one for the patient—for it took about a pound of liver a day to be effective. Liver once a week or so in a moderate helping is a highly-to-be-recommended practice, but eating a pound of liver a day, even spread over three meals a day, is a rather formidable task.

Chemists, therefore, put every effort into concentrating that portion of the liver that saved the anemia-afflicted patients. By 1943, they had succeeded in reducing the amount



**VITAMIN B-12**—Crystals of the new vitamin B-12, which when teamed with the antibiotics give a kick to poultry and hog growth, shown under a high-powered microscope.

to be taken to the point where patients could survive on only one milligram per day of concentrated liver extract. This is about the equivalent in weight of one piece of a postage stamp cut into 50 parts.

Of this one milligram, only a very small fraction is the part responsible for the extract's healing properties. Yet it takes about a ton of liver to get around 20 milligrams of the potent extract. So the search for the powerful portion continued.

### Isolate B-12

In April, 1948, Dr. E. L. Rickes and associates of Merck and Co., announced they had isolated, from highly concentrated liver extract, a few small crystals, the new vitamin B-12. The following week, Dr. E. Lester Smith, of the Glaxo Laboratories in England, announced that he had also isolated the anti-pernicious anemia factor.

Now pernicious anemia victims need take only very tiny doses of vitamin B-12 to hold the disease in check. Recent studies have indicated that each new red blood cell gets one molecule for its very own.

Vitamin B-12 is now being made from the same mold that produces streptomycin, but it is possible that an even cheaper method of production may be found when the riddle of its chemical formula is solved.

### Nutrition Research

If it had not been for research in an entirely different field, discovery of the B-12 producing qualities of streptomycin mold might have been long delayed. Scientists in this field wanted to learn more about the diet needs of animals and so improve their growth, thus give humans better food. Intensive work on this problem has also been going on since the late 1920's, although most of the studies were made recently.

In 1946, Drs. C. A. Cary, A. M. Hartman and their co-workers at the Department of Agriculture reported a new factor—they called it "X"—that seemed to be essential for normal growth in young rats. Milk and commercial liver extract were among the substances that would correct a deficiency of this factor.

### "Guinea Pig" Micro-Organism

Looking for a guinea pig on which to test this rat-growth factor, Dr. Mary Shorb, working at the University of Maryland, studied the micro-organism, *Lactobacillus lactis Dorner*. She found that this micro-organism required not one, but two factors for growth. One is called the TJ factor for the tomato juice in which it is found. The other is the LLD factor. LLD is the short name for *Lactobacillus lactis Dorner*. This LLD was found in the highest concentrations in liver extracts, and the more potent the liver extract in helping pernicious anemia patients, the more powerful the LLD factor.

Because of this, Dr. Shorb thought the LLD factor required by the micro-organism for growth and the chemical that gave such relief to anemia victims were identical. After

crystalline B-12 had been isolated, it was tested with the micro-organism and showed LLD activity. Dr. Shorb's suggestion had been right.

Dr. Rickes then looked for the new vitamin B-12 in other biological materials besides liver, using Dr. Shorb's micro-organism as a guinea pig. He found several. One, a red crystalline compound, was isolated from the mold that gives us streptomycin. Tests showed that this crystalline compound had the same chemical and physical properties as the just-isolated vitamin B-12.

The accidentally discovered growth spurt given by the vitamin-antibiotic combination can be shown by example. Here is how the combination puts extra weight on animals:

### Use Less Feed

A typical chicken grower, using the so-called high-energy diet, containing some animal proteins, is doing well if his chickens weigh three pounds at the end of 12 weeks. And that weight is reached only by feeding the flock three pounds of animal-protein enriched feed per pound of gain.

If however, he adds vitamin B-12 to the same amount of feed, his broilers will be up to three pounds in 11 weeks. But with a combination of B-12 and an antibiotic, he can get a three-pound broiler at the end of ten weeks, using only two and a half pounds of feed per pound of gain to reach this added weight in a shorter time.

Exactly which antibiotic combined with vitamin B-12 will give the best growth for chickens, for turkeys and for hogs is now being tested. There is some evidence that results are more promising with one antibiotic for chickens, another for swine.

Thus the search for the anti-pernicious anemia factor in liver and the hunt for better animal feed came together in one vitamin, the twelfth in the series of B vitamins. And this vitamin, combined with one of the antibiotics, is adding greatly to our poultry and hog production.

Science News Letter, April 14, 1951

### GENERAL SCIENCE

## Draft Deferred Students Should Have Way Paid

► BOYS WHO would be deferred to go to college under new Selective Service regulations but who cannot afford it should have their way paid by the federal government. This is the opinion of Dr. M. H. Trytten, general chairman of the six advisory committees to Selective Service Director Lewis B. Hershey. The six committees were responsible for the new college deferment regulations.

"I believe the time is here when the federal government must give consideration to the support of qualified young men who desire to go to college and cannot afford it," Dr. Trytten reported.

"It has been necessary to provide through Selective Service for the deferment of large numbers of college students in training for the many fields of specialization the nation needs," he went on.

"Congress recognized this need when it wrote the 1948 Selective Service law."

Dr. Trytten pointed out that the six advisory committees strongly advised that something be done about the youngster who did not have the money for college but who did have the ability.

"However," he said, "their responsibility was only to provide a way of carrying out the mandate of Congress. That mandate was that an adequate flow of trained personnel should be provided to meet national needs in the national health, safety and interest through a Selective Service procedure.

"The Committees," Dr. Trytten said, "felt very strongly that this clearly pointed up the question of how to provide equal opportunity for equally qualified youngsters and recommended strongly that early consideration be given by Congress and the government to a program of assistance to such qualified persons."

Science News Letter, April 14, 1951

## PLASTICAST

### FOR PERMANENT PRESERVATION OF BIOLOGICAL SPECIMENS

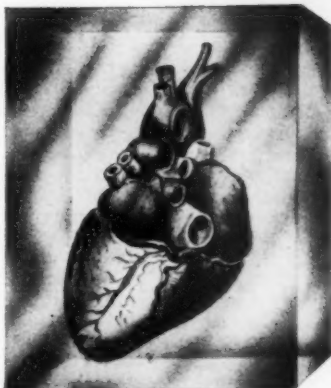
PLASTICAST is a transparent clear liquid plastic (refractive index, 1.5). All forms of biological life, sections or whole small creatures, as well as organs can easily and quickly be PRESERVED FOREVER without deteriorating simply by imbedding in PLASTICAST! The entire process is as easy as pouring water out of a glass and takes less than 30 minutes! A few drops of catalyst are added to the liquid plastic before imbedding. The liquid plastic turns into a hard glass-like solid without heat in 10 to 15 minutes! Ideal for biological work of all kinds. Price per gallon (including catalyst and complete directions), postpaid \$17.00

Trial pint (including catalyst), postpaid... \$3.00

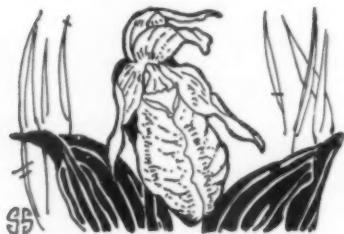
### PLASTICAST COMPANY

P. O. Box 987, Dept. B-5

Palo Alto, Calif.







Lady's Slipper

► "CAPRICIOUS BEAUTY" is the meaning assigned to the lady's slipper in the sentimental language of flowers set forth in an old-fashioned "Flora's Lexicon" of three generations ago.

The beauty has a proper right to be capricious if she chooses, for the lady to whom the slipper classically belongs is the Lady Venus herself. *Cypripedium* is the name in the botany books; the last half, pedium, means a slipper and Cypris is one of the names of the most famous heart-wrecker on Olympus.

Our native lady's slipper species have a right to hold up their heads on another count also, for they are a near relative of the gorgeous exotic orchids, demanded as tribute by present-day capricious beauties, and though less bizarre in shape, they are not at all behind their tropical cousins in delicacy and beauty of coloring. The most common species is a beautiful clear pink, with occasional albino specimens that are pure white, but there is also a species that is fairly frequently found, with the slipper part a bright yellow and the twisted "strings" in yellowish brown.

The beauty of the lady's slipper has been appreciated not wisely and far too well by persons who have not been content to

visit it in its native woods and bog-lands and let it alone there to raise its succeeding, slow-growing generation. They have ripped it up by the roots in great clumps, or even worse and more idly, have given blood-money to men who murder beautiful things for pay.

The flowers invariably avenge this ravishment by dying very quickly in the alien soil where they are set, with the consequence that in the more accessible lands around the cities at least, the lady's slipper is becoming more and more of a rarity. Our grandchildren, perhaps even we ourselves in our old age, will have to make pilgrimages to hidden fastnesses of swamp or mountain to see this capricious beauty, the lady's slipper.

Science News Letter, April 14, 1951

#### MEDICINE

### Inhaling Oxygen Relieves Symptoms of Aisickness

► AIRSICKNESS in some cases may come from being oversensitive to mild anoxia, or oxygen want. This suggestion appears in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (April 7) in answer to a query from a physician.

If this is the case, nausea and vomiting might be warded off entirely, or a second attack prevented, by asking the stewardess to give oxygen for 10 minutes every half hour during the flight. Or if the mask is not uncomfortable, oxygen might be taken during the entire flight.

Dramamine has proved helpful to large numbers who suffer from motion sickness on planes, ships and trains. The medical journal's query came from a physician who was not helped by this drug and who was chiefly bothered by the after-effects of airsickness. These consisted in general malaise, chilliness, lack of interest and inability to concentrate and even some weight loss. The symptoms lasted three or four days.

Measures that have been effective in combatting these after-effects include: inhalation of 100% oxygen for 10 minutes immediately on landing, after an episode of motion sickness, a full meal to be eaten as soon after the flight as possible, amphetamine sulfate during the 12-hour period following the flight, large doses of vitamin B complex during the 24-hour period following a bout of motion sickness.

Other helpful measures suggested in the medical journal include: "getting aboard after a good rest or night's sleep, seating oneself amidship between the wings, with the seat tilted back in the semirecumbent position and either closing or fixing the eyes on an object within the plane and not permitting them to follow and roll with the horizon, and elimination of any alcoholic beverages or dietary excesses prior to plane departure or during the flight. Throughout the flight fluids and foods should be taken only in small amounts."

Science News Letter, April 14, 1951

#### TECHNOLOGY

### Processed Tallow Can Replace Palm Oil

► TIN PLATE producers, following up the research efforts of scientists from Armour Research Foundation of Illinois Institute of Technology, may pull palm oil off the production line and send in a new substitute—specially processed tallow.

The switch, now that successful mill tests have been concluded, should bring smiles of relief to meat packers and Uncle Sam's armed forces as well as members of the steel industry, who visualize a possible saving of between \$500,000 and \$1,000,000 a year at current market prices.

It will aid in maintaining a supply of tin can containers for the armed forces. Meat packers will have a new use for their over-abundance of tallow. The steel industry will have a cheaper, readily-accessible substitute oil for their hot dip tinning operations.

Palm oil, imported from the East Indies and North Africa, has constantly troubled the steel industry.

Costs are high and unstable. And in time of war, enemy action against shipping could cut off long supply lines. Some 7,000 tons of palm oil are used annually for hot dip tinning in the U. S. Numerous substitutes for hot dip tinning have been tried. Several patents have been issued. But up till now the industry has largely continued to use palm oil.

The American Iron and Steel Institute brought the problem to Armour Research Foundation. William R. Johnson, research metallurgist, and George G. Ference, research chemist, were assigned to discover and develop a substitute for the palm oil used in hot dip tinning. It finally was decided that tallow, cheap and available in quantity from U. S. meat packing plants, would be an ideal substance for a substitute tinning oil. Commercial fat processors prepared a special tallow. This was tested, modified, tested again. In a full scale mill test at a major steel plant, hot dip tinplate was produced on a regular production line for more than a month.

Science News Letter, April 14, 1951

**CARGILLE MICRO BEAKERS**

Glass.....Capacity 1ml  
For weighing small quantities of materials for analysis.

For semi-micro procedures  
Useful for many reactions and tests—saving space, time, material.

13 for \$1.00 Dept. S-NL Gross \$7.50

**INDEX OF REFRACTION LIQUIDS**

For Identification of Minerals & other Solids by the Immersion Method of Microscopy

Range 1.400-1.700, intervals of 0.002  
or as selected. Index certified to 0.0002

Range 1.71-1.83, intervals of  $\pm 0.01$

Write for Price List Nd-BNL

**R. P. CARGILLE**

118 Liberty Street New York 6, N. Y.

**THE BINARY SLIDE RULE**

equals a 20 Inch Straight Slide Rule in precision. Has C, CI, A, K, Log, LLI, LL2, LL3, LLI. Binary. Add and Subtract Scales. Gives Trig. Functions from 0 to 90 degrees. The Engine-divided Scales are on white coated aluminum. Permanently accurate. Dia. 8 1/4". Large figures and graduations eliminate eye-strain. Approved at leading Universities. Price, with Case and Instructions, \$7.25. Circulars free. Your money back if you are not entirely satisfied.

**Gilson Slide Rule Co., Box 993, Stuart, Fla.**

Slide Rule Makers since 1915.

## GENERAL SCIENCE

# BW Intelligence Network

► A BIOLOGICAL warfare intelligence network will shortly be set up by the government's Communicable Disease Center in Atlanta. The first 15 BW "intelligence agents" will soon begin receiving intensive laboratory and field training.

As further money and authorizations are granted, other young doctors and nurses will be trained to distinguish natural and accidental epidemics from those set by the enemy. State health departments will be brought into the network. The first conference with state officials on BW will be held in Atlanta, April 19 and 20.

After six weeks' training, the first 15 agents will be assigned to "strategic areas" in the country, according to Dr. Alexander D. Langmuir, chief of the Epidemiologic Services of the Communicable Disease Center. Dr. Langmuir said he would rather not go too specifically into what he meant by "strategic" areas. However, he added, the agents would be attached to state health

departments and Communicable Disease Center field stations.

There, they will receive field training. They will study and report on natural and accidental epidemics.

Dr. Langmuir will be general chairman of the Atlanta meeting of state health departments. Chief subject of the meeting will be the reporting of communicable diseases, with special emphasis on those diseases which could be used in BW.

Dr. Norman Kiefer, director of health services and chief of the special weapons division of the Civil Defense Administration will open the conference.

More than a year ago, Civil Defense announced that some members of state health departments would be trained in detecting biological warfare epidemics but, as yet, no decision has been made as to who is going to do the training, or when, or where.

Science News Letter, April 14, 1951

## MEDICINE

# Map Man's Blood Groups

► A REFERENCE center for the mapping of man's blood groups is to be set up by the Royal Anthropological Institute in London. The decision was taken at a special meeting of the Institute on the subject of Blood Groups and Anthropology, in the course of which the geographical differences in the distribution of blood groups were discussed.

The principal function of this center will be to gather and classify at one central point the vast store of uncollected blood group information now scattered about in innumerable scientific journals in a veritable babel of languages. It will also incorporate new findings as they are reported in the future.

The importance of this work lies in the possible light such information may shed on the genetic relationships of different groups of peoples and on the past nomadic wanderings and migrations of early human tribes over the face of the earth, thus pointing back to the much-disputed "cradle" of mankind.

Starting differences in the occurrence of blood groups is found between the peoples of different areas of the earth, so that anomalous outcroppings of unusual blood groups in certain areas may indicate the past settlement there of invaders from some other region.

One problem in anthropology which the study of blood groups may ultimately help to settle, though so far the results have not been encouraging, is that of the origin of the American Indians.

A committee of ten prominent blood group scientists and anthropologists has been nominated to give immediate study to the setting up of the Blood Group Reference Center. Included in the committee are Prof. R. A. Fisher, geneticist and pioneer investigator of the genetics of the Rh blood group in man; Prof. H. J. Fleure, anthropologist; Dr. A. E. Mourant, Director of Medical Research Council Blood Group Reference Laboratory; and Dr. W. d'A. Maycock, Director of the Ministry of Health Blood Transfusion Service.

Science News Letter, April 14, 1951

## INVENTION

# Earrings Flash With Light In Patented Gadget

► DECORATIVE EARRINGS with tiny electric lights in their centers are promised in an invention on which the government has issued a patent. Lights may be illuminated only when desired.

The entire device includes a small battery to be hidden in the hair, and a comb to hold it in place. Battery and comb are worn low on the back of the head. A ribbon bow helps concealment.

Electric circuits from the battery pass under the hair, where they also are concealed, to the earrings. A switch is provided so that the wearer may light-up or off at will. Inventor is Eli W. Gaffield, Washington, D. C., and he received patent 2,546,945 for his efforts.

Science News Letter, April 14, 1951

# WAR SURPLUS BARGAINS

**MAKE A MICROSCOPE**—Get wonderful results. Own an instrument worth many times the cost to you. Simply convert a U. S. Govt. Rifle Scope (Govt. cost over \$65.00). It's easy! We show you how. No machining required. Get up to 40 Power. Scope we furnish is used but good condition . . . sent complete with extra lenses and direction sheet. Stock #2580-Q . . . \$7.50 Postpaid

**WRENCHES**—for above project, to simplify and speed up work. Stock #258-Q . . . \$1.00 Postpaid

**NON-ABSORBING BEAM SPLITTING MIRROR**—Latest development! Optically flat to 1/4 wave length. Size: 1-15/16" x 2-15/16" x 1/8" thick. Reflects approximately 90% and transmits approximately 80%. No light is absorbed. Has a three-layered film which accomplishes non-absorption. Stock #2567-Q . . . \$3.00 Postpaid

**AMAZING POCKET-SIZE 10-POWER SPOTTING SCOPE**—Complete With Tripod and Swivel Head. Only 5 1/2" long—3 1/2" high on tripod. Adapted from Army telescope and worth many times our price. Excellent for clarity and sharpness. Has prism erecting system, achromatic objective. Ramped Eye-Piece. Lenses low reflection coated. Ideal Scope for sportsmen and hunters. Stock #2585-Q . . . \$14.95 Postpaid

# BINOCULAR BARGAINS

An opportunity to own a truly fine pair of American-made Glasses at substantial savings. Precision built by Anchor Optical Co., our Binoculars are light-weight, dust-proof, moisture-proof, expertly collimated. Optics are low reflection coated. Metal parts chemically treated to prevent corrosion. Sturdy Carrying Case included. Anchor Binoculars are guaranteed for full year against any defects in workmanship or materials. Sold with 10 DAY MONEY BACK PRIVILEGE. Stock #2563-Q . . . 6x30 . . . \$75.00 Postpaid

Stock #2564-Q . . . 7x35 . . . 85.00 Postpaid

Stock #2565-Q . . . 7x50 . . . 95.50 Postpaid

Stock #2566-Q . . . 9x50 . . . 99.50 Postpaid

(Be sure to add 20% Fed. Tax on Binoculars)

**8 POWER ELBOW TELESCOPE**

Gov't. Cost \$200.00! Our Price \$27.50! Big 2" diameter objective. All lenses Achromatic. Amici prism erects the image. 4 built-in-filters—clear, amber, neutral and red. Slightly used condition but all guaranteed for perfect working order. Weight 5 lbs. Stock #943-Q . . . \$27.50 Postpaid

# SPECIAL! SPECIAL! RONCHI RULINGS

## Black Line Grating

Plate glass with etched parallel black lines—space between each line is same as thickness of the ruled line itself. Made by photographic process. Number of lines per inch ranges from 65 to 133 as shown below. Normally cost \$4.00 to \$5.00 per inch. Used for fine measuring, testing and measuring astronomical mirrors, testing microscope objectives, camera objectives, and magnifiers, used in pairs to see diffraction pattern.

1 in. x 1 in.			2 in. x 2 in.		
Stock No.	Lines Per In.	Price	Stock No.	Lines Per In.	Price
2122-Q	65	\$ .75	2133-Q	65	\$1.50
2126-Q	85	.75	2134-Q	85	1.50
2127-Q	110	1.00	2136-Q	110	2.00
2128-Q	120	1.00	2137-Q	120	2.00
2129-Q	133	1.00	2138-Q	133	2.00
2130-Q	150	1.00	2139-Q	150	2.00
2131-Q	175	1.00	2140-Q	175	2.00

All above sent Postpaid.

**TELESCOPE EYEPIECE**—Consists of 2 Achromatic Lenses, F. L. 28 mm. in a metal mount. Stock #2146-Q . . . \$4.50 Postpaid

**SIMPLE LENS KITS**: Kits include parts and written illustrated booklet showing how you can build lots of optical items. Use these lenses in experimental optics, building TELESCOPES, low power Microscopes, etc. Stock #2-Q—10 lenses . . . \$ 1.00 Postpaid

Stock #25-Q—45 lenses . . . \$ 5.00 Postpaid

Stock #10-Q—80 lenses . . . \$10.00 Postpaid

**PRISMS: PRISMS: PRISMS!**

We have the world's largest stock, widest variety, at the lowest prices. Write for our FREE Catalog Q. **SLIDE PROJECTOR SETS**—Consist of all unmounted lenses you need to make the following size projectors:

Stock #4029-Q—35 mm . . . \$2.35 Postpaid

Stock #4038-Q—2 1/4" x 2 1/4" . . . \$3.35 Postpaid

Stock #4039-Q—2 1/4" x 3 1/4" . . . \$3.35 Postpaid

We Have Literally Millions of WAR SURPLUS LENSES AND PRISMS FOR SALE AT BARGAIN PRICES. Write for Catalog "Q"—FREE!

Order by Stock No. Satisfaction Guaranteed

**EDMUND SCIENTIFIC CORP.**

(Formerly Edmund Salvage Co.)

BARRINGTON, NEW JERSEY

# • Books of the Week •

TO SERVE YOU: To get books, send us a check or money order to cover retail price. Address Book Dept., SCIENCE NEWSLETTER, 1719 N St., N. W., Washington 6, D. C. Ask for free publication direct from issuing organizations.

**GENERAL ELECTRIC'S TREE OF LIGHT: A Pictorial History of Light Source Development—General Electric Lamp Department, Wall chart, 10 cents. Suitable for classroom use.**

**HIGH SCHOOL PHYSICS—Oswald H. Blackwood, Wilmer B. Herron and William C. Kelly—Ginn, 671 p., illus., \$3.76. An attractive high school text with suggested experiments that can be performed at home with homemade equipment.**

**HUMAN FERTILITY: The Modern Dilemma—Robert C. Cook—Sloane, 380 p., \$4.50. Presenting the problem of unbalanced and unchecked fertility which is "ravaging many lands like a hurricane or a tidal wave" and the badly distributed human fertility, a biological erosion which is "leaching away the inborn qualities of tomorrow's children."**

**INTERNATIONAL DIRECTORY OF ADULT EDUCATION—UNESCO, 373 p., paper, draft edition, free upon request to the UNESCO Relations Staff, U. S. Department of State, Washington 25, D. C. A comprehensive list of agencies engaged in or contributing to adult education.**

**INVITATIONAL CONFERENCE ON TESTING PROBLEMS—Robert L. Thorndike, Chairman—Educational Testing Service, 117 p., paper, \$1.00. Papers and discussion presented at the 1950 conference.**

**NATIONAL URBAN LEAGUE 40TH ANNIVERSARY YEAR BOOK—National Urban League, 128 p., illus., free upon request to publisher, 1133 Broadway, New York 10, N. Y. An account of the league's service in improving interracial relations.**

**NATURE, MAN, AND GOD: A Synthesis of Pantheism and Scientific Humanism—Oliver L. Reiser—University of Pittsburgh Press, 152 p., paper, \$2.00. A philosophical treatise.**

**THE NEW PHYSICS: Talks on Aspects of Science—Sir C. V. Raman—Philosophical Library, 144 p., \$3.75. The distinguished Indian Nobelist and discoverer of the Raman Effect discusses in an informal way various interesting aspects of nature.**

**1951 MEMO TO MEMBERS—Industrial Hygiene Foundation, 12 p., paper, free upon request to publisher, 4400 Fifth Ave., Pittsburgh 13, Pa. Concerned with activities, membership, officers and committees of the foundation.**

**PARACELSUS: Magic into Science—Henry M. Pachter—Schuman, 360 p., illus., \$4.00. The delightful biography of a controversial figure who anticipated modern chemistry, medicine and physics, and was believed by men of his day to be inspired either by God or the devil.**

**PROCEEDINGS 1949 PATENTS AND RESEARCH SEMINARS—National Association of Manufacturers, 40 p., paper, free upon request to publisher, 14 West 49th St., New York 20, N. Y. Includes addresses by experts on university research, the importance of research, and patents and the U. S. economy.**

**SOCIAL SCIENCE RESEARCH COUNCIL ANNUAL REPORT 1949-1950 Social Science Research Council, 65 p., paper, free upon request to**

the publisher, 230 Park Ave., New York 17, N. Y.

**THE SOVIET STATE AND ITS INCEPTION—Harry Best—Philosophical Library, 448 p., \$6.00. The author attempts an objective appraisal of what has taken place in Russia—what they have done to their credit and what they have done that is not to their credit.**

**WORDS AND THEIR USE—Stephen Ullmann—Philosophical Library, 108 p., \$2.75. Of interest to anyone concerned with the use of words and with language and its development. The author is head of the department of romance philosophy and general linguistics in the University of Glasgow.**

**YOUR HEALTH—Dean Franklin Smiley and Adrian Gordon Gould—Macmillan, 555 p., illus., \$4.50. A college text intended to help students appreciate the value of good health in these days when sound bodies, resilient minds and well-integrated personalities are of utmost importance.**

Science News Letter, April 14, 1951

## PSYCHOLOGY

### Kinsey Sex Volunteers Found More Unconventional

► THE MEN who contributed the stories of their sex lives to Dr. Kinsey's investigation may not have been typical of the general population.

This is indicated by a study conducted by Drs. A. H. Maslow and James Sakoda of Brooklyn College and reported to the Eastern Psychological Association, Brooklyn, N. Y.

Names of men from Brooklyn College who volunteered to furnish sex history to the Kinsey investigation were supplied by Dr. Kinsey to Drs. Maslow and Sakoda. These students had already taken personality tests in the psychology class.

Comparison of the volunteers with others who had refused to give information about their sex lives showed the volunteers to be more sure of themselves.

Since men who score high in self-esteem are likely to experiment more with sexual deviations and be less conventional and less inhibited, Dr. Maslow told the meeting, it is possible that the men interviewed by Dr. Kinsey, being largely volunteers, were much more likely to be unconventional in their sex behavior than men not interviewed.

Science News Letter, April 14, 1951

## CHEMISTRY

### Possible New Fibers and Plastics from Milk Protein

► POSSIBLE NEW fibers and plastics from the protein part of milk were foreseen by Dr. Thomas L. McMeekin, of the Eastern

Regional Research Laboratory, Philadelphia.

He told the American Chemical Society meeting, Boston, how casein, 80% of the protein of milk, has been separated into three distinct materials, using electricity. An electrical field causes the protein particles to move through the water, attracted toward the opposite charge, since they have an electrical charge. They can be separated by the difference in their rate of movement.

Casein, because of its abundance, ease of preparation and stability, has been used as a standard pure protein for over a century.

Science News Letter, April 14, 1951

## On This Week's Cover

► GIANT oil-filled circuit breakers, now streamlined to conserve oil and manpower, are shown on the cover of this week's SCIENCE NEWS LETTER. The "watch case" design of the Westinghouse Electric Corporation's switches results in a 50% saving in the amount of oil required as well as in a saving in manpower needed to filter the oil, when compared to the drum-shaped tank.

Science News Letter, April 14, 1951

## TECHNOLOGY

### New Leather Is White All the Way Through

► YOU MAY soon be able to buy white leather shoes that will not tend to yellow with age. Plastic tanning agents, melamine resins, give white leather that does not darken with age or exposure to sunlight, Drs. D. G. Patterson, E. B. Detwiler and T. J. Suen, of the American Cyanamid Company, Stamford, Conn., reported to the American Chemical Society, Boston.

Leathers tanned with melamine resins are white all the way through. White leathers tanned with formaldehyde sometimes become yellow with age. Chrome-tanned leathers, made white on the outside by bleaching and treatment with pigments, still have a dark-colored interior.

Science News Letter, April 14, 1951

### Three Dimension Models of the Basic Crystallographic Forms

Construction kit contains material and instructions for making 111 crystal models. Inexpensive for class, laboratory and home use. Meets requirements of crystallographers, mineralogists, chemists, geologists, science teachers and others. Price...\$5.00

### The Amateur Naturalist's Handbook

This book brings to all nature lovers tools they have long needed in their favorite activities. It makes available for the first time in one convenient volume all the basic data as well as the best ways to proceed. Price...\$3.50

### ECKERT MINERAL RESEARCH NATUREGRAPH CO.

110 EAST MAIN ST.  
FLORENCE, COLORADO



## CHEMISTRY

# Near Synthetic Penicillin

Chemically created substance nearer composition of penicillin than heretofore attained, bringing synthetic production one step closer.

► **CHEMICAL CREATION** of substances nearer the composition of penicillin than any heretofore made in the laboratory, announced to the American Chemical Society, Boston, by Dr. John C. Sheehan of the Massachusetts Institute of Technology, brings one step nearer the chemist's goal of synthetic penicillin production on a large scale.

Present methods of producing this important antibiotic drug are dependent on growth of a living mold. The mold culture must be grown in batches, and is subject to variation due to many causes difficult to control. If the exact chemical produced by the mold can be duplicated by the chemist, synthetic production in quantity should be possible. Many researches have been carried on during the past eight years in the hope of finding the right compound with penicillin's germ-killing ability.

The remarkable properties of penicillin

are believed due to an unusual combination of carbon, nitrogen and sulfur in the form known as a "beta-lactam ring." This combination, Dr. Sheehan finds, is easily destroyed by heat and acids. His method overcomes this difficulty by devising low temperature methods of making beta-lactam chemicals in neutral solutions. Three new reactions are announced by Dr. Sheehan and his group of researchers which fulfill these conditions for making penicillin-like substances.

Earlier reported methods of synthesis of penicillin yielded small amounts of material which had penicillin's antibiotic power. The products reported by the research groups at the present meeting still lack this essential quality. It is, however, Dr. Sheehan's belief that, once the structure of penicillin is well understood, the specific modification which kills germs can be added to the beta-lactam molecule.

Science News Letter, April 14, 1951

## MEDICINE

# Powerful Antimalarial Drug

► **DEVELOPMENT** of an antimalarial drug so powerful that a single ounce would constitute a five- to ten-year supply for the average patient was announced at the American Chemical Society meeting in Boston.

Although the drug is now being tested on malaria victims in Africa, it is still only in the experimental stage, and its true value will not be known until adequate clinical evidence has been compiled. Dr. George H. Hitchings and associates from the Wellcome Research Laboratories, Tuckahoe, N. Y., reported.

The drug, which is synthesized from readily available raw materials, is of the "suppressive" type, which means it would not provide a cure but would be used to control the disease.

Technically known as "5-parachlorophenyl-2, 4-diamino-o-ethylpyrimidine," the new drug is one of a series developed as the result of an investigation of the fundamental chemistry of cell division, Dr. Hitchings reported.

Collaboration by workers on both sides of the Atlantic was involved in the development of the antimalarials. The synthesis and preliminary studies were carried out by the group at Tuckahoe, including Dr. Peter B. Russell and two women chemists, Elvira A. Falco and Shirley DuBreuil,

while testing against malarial infections in mice, chicks, and monkeys was done in London, England, by Dr. L. G. Goodwin and I. M. Rollo at the Wellcome Laboratories of Tropical Medicine. Dr. Goodwin is now conducting the experimental work with human subjects in Nigeria, Africa.

"The first observation, two years ago, of a substance with a potency about the same as that of quinine was the starting point from which drugs of higher and higher potency have been developed," Dr. Hitchings said. "New substances were discovered with five, then twenty-five, one hundred, five hundred, and finally one thousand times the original potency.

"All of these substances belong to a group of 2,4-diaminopyrimidines previously found to inhibit milk-souring bacteria, but fine details of chemical structure greatly affect their action on malarial organisms. The most potent group is the 2,4-diamino-5-phenyl pyrimidines, and the most potent substance is 5-parachlorophenyl-2,4-diamino-o-ethylpyrimidine.

"High potency in an antimalarial drug is very important in its use. A drug like the chlorophenyl diaminopyrimidine need be taken in very small amount. The amount necessary is so small that unpleasant side effects and toxic reactions are avoided, and the cost of treatment is very low.

"It has been estimated that 500 million people in the world suffer from malaria. Many of these, living in tropical countries with a low standard of living, receive no treatment whatever. Because they are continually being reinfected, almost constant treatment is necessary to keep them free of the disease. In terms of quinine or atabrine, this is too costly. It is hoped that the new drugs will bring relief to many of these people."

Science News Letter, April 14, 1951

A pound of lawn seed may contain 3,000,000 seeds.

Airplanes have been experimentally tried during the past winter to distribute salt along main highways to clear them of ice and snow.



## SELLS FIRST STORY AT SIXTY

"Since I am crowding threescore, my objective in taking the N.I.A. course, was not to become a professional writer. However, while still taking the course, I sent an article to St. Joseph Magazine. It was immediately accepted. Encouraged, I wrote others. Our Navy accepted them and asked for more. All thanks to N.I.A."—Albert M. Hinman, 1937 East Shore Street, Tucson, Arizona.

## How Do You Know You Can't Write?

HAVE you ever tried?

Have you ever attempted even the least bit of training, under competent guidance?

Or have you been sitting back waiting for the day to come when you will awaken all of a sudden to the discovery, "I am a writer?"

If the latter course is the one of your choosing, you probably never will write. Lawyers must be law clerks. Doctors must be internes. Engineers must be draftsman.

That is why the Newspaper Institute of America bases its writing instruction on journalism—continuous writing—the training that has produced so many successful authors.

### Learn to write by writing

Newspaper Institute's New York Copy Desk Method starts and keeps you writing in your own home. You receive actual assignments, just as if you were at work on a great metropolitan daily. Your writing is individually corrected and constructively criticized. Under such sympathetic guidance, you will find that (instead of vainly trying to copy someone else's writing tricks) you are rapidly creating your own distinctive, self-flavored style.

Many potential writers become awestruck by fabulous stories about millionaire authors and, therefore, give little thought to the \$25, \$50 and \$100 or more that can often be earned for material that takes little time to write—stories, articles on business, sports, local and club activities, etc.—things that can easily be turned out in leisure moments.

### A chance to test yourself—FREE.

Our unique Writing Aptitude Test tells whether you possess the fundamental qualities necessary to successful writing—acute observation, dramatic instinct, creative imagination, etc. You'll enjoy taking this test. The coupon will bring it free, without obligation. Newspaper Institute of America, One Park Ave., New York 16, N. Y. (Founded 1925)

Veterans: Course Approved for Veterans' Training!

## FREE NEWSPAPER INSTITUTE OF AMERICA ONE PARK AVENUE, NEW YORK 16, N.Y.

Send me, without cost or obligation, your Free Writing Aptitude Test and further information about writing for profit, as promised in Science News Letter, April 14th.

Mr. \_\_\_\_\_  
Mrs. \_\_\_\_\_  
Miss \_\_\_\_\_

Address \_\_\_\_\_

☐ Check here if you are eligible under the G.I. Bill of Rights.

(All correspondence confidential. No salesman will call on you.)

117-D-801

Copyright 1949 Newspaper Institute of America

# • New Machines and Gadgets •

For addresses where you can get more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N ST., Washington 6, D. C. and ask for Gadget Bulletin 563. To receive this Gadget Bulletin without special request each week, remit \$1.50 for one year's subscription.

✿ **ENGINE WARMER**, a fully automatic device for keeping the automobile engine warm in cold weather, is connected into the car's electric system and automatically starts the engine when the outside temperature falls. After the running engine is restored to normal temperature, a shut-off stops it.

Science News Letter, April 14, 1951

✿ **ALL-PURPOSE SPRAYER**, for attachment to a garden hose, picks up concentrated solutions from a bucket and mixes them in a one-to-ten ratio with the water delivered. Water pressure does the work, and it can be used to apply insecticides, fungicides, weed-killing chemicals and soluble fertilizers.

Science News Letter, April 14, 1951

✿ **TELEPHONE EQUIPMENT**, for use in burning buildings by firemen wearing gas masks, permits two-way talk with others outside. It contains transmitter and earphones, which can be attached to most fire-fighting masks, and insulated cable for transmission. No batteries or other power sources are needed.

Science News Letter, April 14, 1951

✿ **LEAK DETECTOR**, to determine extremely small leaks in vacuum systems, utilizes hot platinum which emits positive ions in increased quantities when stimulated by freon gas or other halogens. If a jet of freon, directed against a test spot, strikes a leak, a needle on the meter deflects.

Science News Letter, April 14, 1951

## Do You Know?

"Pond scums" are *algae* that help keep fishes alive.

True *wolves* are fast becoming extinct in the United States.

Lime should be applied to a *lawn* only after tests show the soil to be acid.

Rice hulls are a good *abrasive* for polishing metal castings because they have a relatively high silica content.

*Geese* are good weeders of strawberry beds; they will eat the weeds and grass but do not like the strawberry plants.

California red scale, *insect* pest to citrus growing, is hard to reach with insecticides because it is protected with shell-like armor.



✿ **GASOLINE LANTERN**, for summer camps, farms and emergency uses, is handy to carry and gives off a light comparable to that of a 200-watt electric bulb and burns for nine hours on one filling. An

attachable steel reflector and special handle convert it into a spotlight.

Science News Letter, April 14, 1951

✿ **PRACTICE ARM**, for teaching military medical personnel how to insert an injection needle into the vein of an injured man in a combat area, is a plastic reproduction of a forearm, with a skin-like covering. Properly placed plastic tubes inside, filled with colored fluid, represent veins.

Science News Letter, April 14, 1951

✿ **SYNTHETIC RUBBER** in liquid form is applied to steel, wood and concrete surfaces by brush or spray and air-dries rapidly under ordinary atmospheric conditions to provide a thin protective coating. This elastic, non-cracking neoprene coating is resistant to weather, oil, grease and chemicals.

Science News Letter, April 14, 1951

✿ **CHLORINE TABLETS**, for treating drinking water, bleaching and general disinfection uses, dissolve slowly giving a continuous supply of free chlorine for periods up to nine hours. These easy-to-use tablets contain 68% available chlorine and are similar to hypochlorite powders.

Science News Letter, April 14, 1951

It's not too late . . .

## Start your spring planting indoors with a SOILLESS GARDENING KIT

Think of it! . . . a complete, easy-to-use kit can start you off with a miniature garden in your house or apartment . . . little space needed, no dirt . . . plants ready for transplanting outside in two weeks.

Created and produced by SCIENCE SERVICE. Soilless Gardening Kits come complete with full instructions, pots, seeds, chemicals, vermiculite, hormodin, and seedless fruit hormone.

**ORDER NOW \$4.95 each, postpaid**

Please mail to my address as printed at the right.....Soilless Gardening Kits at \$4.95 each.

I enclose \$..... ( ) Bill me.

O.K. by initials.....

### SNL PRIORITY ORDER

SCIENCE SERVICE  
1719 N Street N. W. • Washington 6, D. C.

Clip and enclose this address imprint whenever you write us to renew your SCIENCE NEWS LETTER subscription, change address, order other materials, etc. It identifies you as one of the SNL family. Lower line date is expiration. Allow three weeks for address change.

UNIV OF MICHIGAN  
THE OBSERVATORY  
ANN ARBOR MICH  
APR 14 1951